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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,168	11/12/2003	Stephen D. Allen	3548.2.3	7573
21552	7590	09/01/2005	EXAMINER	
MADSON & METCALF GATEWAY TOWER WEST SUITE 900 15 WEST SOUTH TEMPLE SALT LAKE CITY, UT 84101			MENON, KRISHNAN S	
			ART UNIT	PAPER NUMBER
			1723	
DATE MAILED: 09/01/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Interview Summary

Application No.

10/706,168

Applicant(s)

ALLEN ET AL.

Examiner

Krishnan S. Menon

Art Unit

1723

All participants (applicant, applicant's representative, PTO personnel):

(1) Krishnan S. Menon.

(3)_____.

(2) Evan Witt, attorney.

(4)_____.

Date of Interview: 29 August 2005.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.
If Yes, brief description: _____.

Claim(s) discussed: 1, 10 and 36-39.

Identification of prior art discussed: Bladden and Golden.

Agreement with respect to the claims f) ☐ was reached. g) ☒ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: attached.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW: See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Examiner's signature, if required

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

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Attachment to Interview Summary:

Applicant submitted a proposed amendment and remarks in advance, which is attached herewith. Applicant was advised that since the application is at after final stage, and since the proposed amendments contain new issues which require further consideration and new set of claims without canceling the corresponding number of claims, the amendment if submitted as after-final would not be entered.

Applicants in their remarks pointed out that (1) the particles sizes obtained in the process are important in the effectiveness of the microfiltration process, and the low molecular weight epi-dmas coagulant is important in obtaining the particles sizes compared to the high molecular weight acrylamides used by Bladen. (2) Bladen patent uses floatation process compared to the applicant's microfiltration process; Bladens' high molecular weight acrylamide would produce large agglomerate sludge that would clog the microfiltration membranes. (3) Golden patent is directed at removing metal contaminants from wastewater and uses polymeric dithiocarbamate contrary to the present invention.

Applicant also indicated that they would file an RCE.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'K S Menon', with a stylized, cursive script.

Krishnan S. Menon
Patent Examiner
8/29/05

Appl. No. : 10/706,168
Applicant : Stephen D. Allen et al.
Title : EXTRACTION METHODOLOGY
FOR SUSPENDED AND DISSOLVED
MATERIAL FROM FRUIT AND
VEGETABLE WASTEWATER
Filed : November 12, 2003
TC/A.U. : 1723
Examiner : Krishnan S. Menon
Docket No. : 3548.2.3

Outline of Discussion for Examiner Interview

The following are proposed claim amendments and a brief discussion of the cited prior art in preparation for our telephonic Monday, August 29, 2005 at 11:00 am (Eastern Time).

Proposed Claim Amendments for Discussion:

Claim 1 (Currently Amended): A process of removing suspended and dissolved material from fruit and vegetable wastewater comprising the steps of:

adding an inorganic coagulant polymer to the wastewater to create a charge interaction wherein coagulated solid particles are formed from the suspended and dissolved material in the wastewater; and

adding a synthetic organic polymer ~~having an effective molecular size and weight~~ to the wastewater to neutralize all the coagulated solid particles into a plurality of solid particles each having a size ranging from 15 to 150 microns ~~of approximately 50 microns, a weight of approximately 0.99 to 1.004 grams per milliliter, and a viscosity less than 50 centipose per second; and~~

~~filtering the solid particles from the wastewater with a generally tubular microfiltration membrane having a fluid flow of at least 250 GFD passing the wastewater through a microfiltration membrane to separate the solid particles from the wastewater.~~

Claim 2 (Original): The process as recited in claim 1, wherein the coagulant polymer is selected from the group including: an aluminum compound having a charge of +3, an iron based compound having a charge of +3 and a calcium compound.

Claim 3 (Original): The process as recited in claim 2, wherein the aluminum based compound is selected from the group including: aluminum chloride, aluminum sulfide, poly aluminum chloride and aluminum chlorohydrate.

Claim 4 (Original): The process as recited in claim 2, wherein the iron based compound is selected from the group including: ferric sulfate and ferric chloride.

Claim 5 (Previously Presented): The process as recited in claim 1, wherein the coagulant polymer is added in an amount that is based upon a quantity of TSS, BOD and COD determined to be in the wastewater.

Claim 6 (Original): The process as recited in claim 1, wherein the coagulant polymer is added in an amount that is approximately equal to: $20*((\text{BOD Qty} + \text{COD Qty} + (0.35*(\text{TSS Qty}))) / 1000)$, wherein the BOD Qty, COD Qty and TSS Qty represent the corresponding amounts of BOD, COD and TSS in the wastewater.

Claim 7 (Original): The process as recited in claim 1, wherein the coagulant polymer is a basic coagulant polymer when the pH of the wastewater is low and is an acidic coagulant polymer when the pH of the wastewater is high.

Claim 8 (Original): The process as recited in claim 1, wherein coagulant polymer is added in an amount between 50 to 200 ppm.

Claim 9 (Cancelled)

Claim 10 (Original): The process as recited in claim 1, wherein the synthetic organic polymer is selected from the group including: DADMAC, acrylamide and epi-dma.

Claim 11 (Currently Amended): The process as recited in claim 1, wherein the synthetic organic polymer is epi-dma ~~having a low molecular weight~~.

Claim 12 (Currently Amended): The process as recited in claim 1, wherein the synthetic organic polymer is an organic polymeric backbone having a molecular weight in the range of 150,000 to 500,000 atomic mass units ~~of known molecular size and weight~~.

Claim 13 (Original): The process as recited in claim 1, wherein the synthetic organic polymer is added in an amount between a 5:1 and 25:1 ratio of coagulant polymer to synthetic organic polymer.

Claim 14 (Original): The process as recited in claim 1, wherein the synthetic organic polymer is added in an amount between 10 to 50 ppm.

Claim 15 (Cancelled)

Claim 16 (Original): The process as recited in claim 15, wherein the dwell time is between 5 and 30 minutes.

Claim 17 (Original): The process as recited in claim 1, wherein the filtering is performed by a polypropylene filter membrane.

Claim 18 (Previously Presented): The process as recited in claim 17, wherein the wastewater flows through the filter membrane from an outside of the filter membrane to an inside of the filter membrane.

Claim 19 (Original): The process as recited in claim 1, further comprising the step of adding a pH adjuster to the wastewater to adjust the pH of wastewater and to remove sulfates.

Claim 20 (Original): The process as recited in claim 19, wherein the pH adjuster is Mg(O).

Claim 21 (Currently Amended): A process of removing suspended and dissolved material from fruit and vegetable wastewater comprising the steps of:

adding the wastewater to a tank;

determining an amount of BOD, COD and TSS in the wastewater;

adding simultaneously to the wastewater in the tank:

~~an effective amount of an inorganic coagulant polymer to the wastewater creating a charge interaction wherein coagulated solid particles are formed from the suspended and dissolved material in the wastewater, wherein the effective amount of the inorganic coagulant polymer is approximately equal to: $20 * ((\text{BOD Qty} + \text{COD Qty} + (0.35 * (\text{TSS Qty}))) / 1000)$, where the BOD Qty, COD Qty and TSS Qty represent the corresponding amounts of BOD, COD and TSS in the wastewater;~~

~~an effective amount of a synthetic organic polymer having an effective molecular size and weight to neutralize all the coagulated solid particles into solid particles having a size ranging from 15 to 150 microns having a size of approximately 50 microns, weight 0.990 to 1.004 grams per milliliter, and a viscosity less than 50 centipose per second, wherein the amount of synthetic organic polymer added is between a 5:1 and 25:1 ratio of coagulant polymer to synthetic organic polymer; and~~

~~filtering the solid particles from the wastewater with a generally tubular microfiltration membrane having a fluid flow of at least 250 GFD passing the wastewater through a microfiltration membrane to separate the solid particles from the wastewater.~~

Claim 22 (Original): The process as recited in claim 21, wherein the coagulant polymer is selected from the following group of compounds: an aluminum based compound having a charge of +3, an iron compound having a charge of +3, and a calcium compound.

Claim 23 (Original): The process as recited in claim 21, wherein the synthetic organic polymer is selected from the following group of compounds: DADMAC, acrylamide and epi-dma.

Claim 24 (Currently Amended): A process of removing suspended and dissolved material from a continuous stream of fruit and vegetable wastewater comprising the steps of:

adding continuously a stream of the wastewater to a tank;

adding simultaneously to the wastewater in the tank, an inorganic coagulant polymer and a synthetic organic polymer produce a stream of treated solution containing treated liquid and solid particles having a size ranging from 15 to 150 microns having a size of approximately 50 microns, weight 0.990 to 1.004 grams per milliliter, and a viscosity less than 50 centipose per second;

separating the solid particles from stream of treated solution by settling to produce a stream of treated liquid; and

~~filtering passing the stream of treated liquid through a microfiltration membrane through a generally tubular microfiltration membrane having a fluid flow of at least 250 GFD to collect residual solid particles and a stream of filtered liquid.~~

Claim 25 (Original): The process as recited in claim 24, wherein the coagulant polymer is selected from the following group of compounds: an aluminum based compound having a charge of +3, an iron compound having a charge of +3 and a calcium compound.

Claim 26 (Original): The process as recited in claim 24, wherein the synthetic organic polymer is selected from the following group of compounds: DADMAC, acrylamide and epi-dma.

Claim 27 (Original): The process as recited in claim 24, wherein the step of adding coagulant and synthetic organic polymers has a dwell time between 5 and 30 minutes.

Claim 28 (Original): The process as recited in claim 24, wherein the continuous stream of wastewater has a flow rate and the continuous stream treated solution has a flow rate and the two flow rates are equal.

Claim 29 (Original): The process as recited in claim 24, wherein the continuous stream of wastewater has a flow rate and the continuous stream treated liquid has a flow rate and the two flow rates are equal.

Claim 30 (Original): The process as recited in claim 24, wherein the residual solid particles collected on the filter membrane act as a separate filter that filters out other residual solid particles and as the residual solid particles accumulate on the filter membrane a fluid flow through the filter membrane is not significantly reduced.

Claim 31 (Original): The process as recited in claim 24, wherein the wastewater flows through the filter membrane from the outside of the filter membrane to the inside of the filter membrane.

Claim 32 (Currently Amended): A process of removing suspended and dissolved material from a continuous stream of fruit and vegetable wastewater comprising the steps of:

adding continuously the wastewater to a tank;

adding simultaneously to the wastewater in the tank:

an inorganic coagulant polymer and a synthetic organic polymer to produce a stream of treated solution containing treated liquid and solid particles having a size ranging from 15 to 150 microns ~~having a size of approximately 50 microns, weight 0.990 to 1.004 grams per milliliter, and a viscosity less than 50 centipose per second,~~ wherein the coagulant polymer is selected from the following group of compounds: an aluminum

based compound having a charge of +3, an iron compound having a charge of +3, and a calcium compound;

separating the solid particles from the stream of treated solution by settling to produce a stream of treated liquid, wherein the synthetic organic polymer is selected from the following group of compounds: DADMAC, acrylamide and epi-dma; and

~~filtering passing the stream of treated liquid through a microfiltration membrane through a generally tubular microfiltration membrane having a fluid flow of at least 250 GFD to collect residual solid particles and a stream of filtered liquid, membrane to act as a separate filter for other residual solid particles and as the residual solid particles accumulate on the membrane the fluid flow through the filter membrane is not significantly reduced.~~

Claim 33 (Original): The process as recited in claim 32, wherein the step of adding coagulant and synthetic organic polymers has a dwell time between 5 and 30 minutes.

Claim 34 (Original): The process as recited in claim 32, wherein the continuous stream of wastewater has a flow rate and the continuous stream treated liquid has a flow rate and the two flow rates are equal.

Claim 35 (Cancelled)

Claim 36 (new): A process of removing suspended and dissolved material from fruit and vegetable wastewater as in claim 1, wherein the filtered solid particles contain less than 3% bound water.

Claim 37 (new): A process of removing suspended and dissolved material from a continuous stream of fruit and vegetable wastewater as in claim 32, wherein the filtered solid particles contain less than 3% bound water.

Claim 38 (new): A process of removing suspended and dissolved material from fruit and vegetable wastewater as in claim 1, wherein the microfiltration membrane is a low pressure membrane that operates at pressures less than 24 psi.

Claim 39 (new): A process of removing suspended and dissolved material from fruit and vegetable wastewater as in claim 32, wherein the microfiltration membrane is a low pressure membrane that operates at pressures less than 24 psi.

General Discussion:

The foregoing amendments address the Section 112 rejections set forth in the final Office Action. The new matter has been removed and the indefinite claim terms have been clarified. The foregoing amendments also clearly distinguish the invention from the cited prior art references.

The primary reference, Bladen et al., relates to treating "wastewater" generated by washing stations in citrus fruit and vegetable packing facilities. Bladen, column 5, lines

17-24. Bladen's use of the term "wastewater" is inaccurate based upon customary usage in the industry, and it should instead be "wash water." The terms wastewater and wash water are distinct. Wash water is water used to wash the surface of fruits and vegetables. Wash water removes dirt and chemicals from the surface of the fruits and vegetables. Wastewater, on the other hand, relates to water generated during the actual processing of the fruits and vegetables, and it customarily includes organic material from the interior of the fruits and vegetables. As described in Applicants' specification in paragraph [0031], wastewater usually includes a confluence of all plant wastewater streams including water generated during the actual processing of the fruits and vegetables. Regardless of whether Bladen's "wastewater" is within the scope of the term wastewater used in the present claims, Bladen's process is different from the present invention.

Bladen uses flotation coagulation/clarification and ozonization to clean the "wastewater." Bladen's wastewater is treated with an anionic polyacrylamide, in combination with a metal salt. Anionic polyacrylamide is the generic name for a group of very high molecular weight macromolecules produced by the free-radical polymerization of acrylamide and an anionically charged co-monomer, mainly the sodium salt of acrylic acid, sodium acrylate. The combination of very high molecular weight and ionic charge results in extremely viscous aqueous solutions, one of the main properties of these polymers. The molecular weight is greater than 1,000,000 Daltons and usually greater than 5,000,000 Daltons. Bladen's treated wastewater enters a coagulation vessel 69 where "the polymer and coagulated contaminants float to the top of the first compartment to form a sludge." Column 6, lines 58-62. Bladen separates contaminants from wastewater by flotation, not by microfiltration. Indeed, Bladen's choice of polymer is to produce a floatable sludge. Bladen's sludge cannot be separated from wastewater by microfiltration because the sludge would "blind" or clog any microfilter immediately upon contact. In this regard, one having ordinary skill in the art would not be motivated to combine the teachings of Bladen and Golden because the separation mechanisms are mutually exclusive. In other words, Bladen and Golden are not properly combinable to support a rejection under Section 103.

Bladen does not disclose or suggest the formation of solid particles of the disclosed size range. Moreover, Bladen does not disclose or suggest the formation of solid particles containing less than 3% bound water as set forth in new claims 36 and 37. Support for this is found in paragraph [0059] of the specification.

Golden discloses the formation of filterable particles; however, Golden is drawn to a process for removing heavy metal contaminants from wastewater. Golden teaches the use of a polymeric metal removing agent, which is a polymeric dithiocarbamate, to create large filterable particles. Golden discloses the optional use of coagulants or flocculating agents to aid in the precipitation of solids, some of which are also disclosed in the present specification. However, Golden's required use of a polymeric dithiocarbamate is contrary to the present invention. Thus, even if Golden is combined with Bladen, the wastewater treatment chemistries of Bladen and Golden are sufficiently different that there is no motivation to modify either Bladen or Golden in a manner to arrive at the claimed invention.